

# Planning the Experiment

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Team Members: \_\_\_\_\_ Period/Class: \_\_\_\_\_

- Inquiry Tips*
- Research Questions:**
- Should be testable (by experimentation)
  - HOW or WHAT questions typically work well
- Hypothesis:**
- What you think will happen based on prior experience and/or knowledge of this topic
  - Be sure to state WHY you think this will happen
- Independent Variable:**
- The manipulated or tested variable (the ONE thing you are changing)
  - The cause
- Dependent Variable:**
- The outcome or measured variable (what you measure/observe; the results or outcome of the experiment)
  - Include the unit of measurement (or category of observation)
  - The effect
- Constants or Controls:**
- All the things you keep the same to be sure you are investigating ONLY the independent variable
- Materials:**
- List all materials you will use during experimentation (and quantities needed)
- Diagram of Set up:**
- Draw (and label) the experimental set up (and control set up if needed), being sure to NOTE any needed safety precautions
- Procedures:**
- Include step-by-step directions of the procedures to be followed
  - The procedures should be detailed so that another person could read them and perform the test EXACTLY the same way
- Data:**
- Set up and label both a data table and a graph to be used to record the data during experimentation
  - Be sure to have your plan expert reviewed before proceeding with the experiment
- Conclusions:**
- Start by supporting or rejecting the hypothesis (Never use “PROVE”)
  - Provide concise evidence (summarize data) to support/reject
- Discussion:**
- Discuss what you now know based on the data results
  - Elaborate on the “so what” or meaning behind the results
  - Avoid opinions, but include EVIDENCE-based inferences

Our research question is:			
Our hypothesis is:			
The independent (tested, manipulated) variable is:	The dependent (outcome, measured) variable is:	In what unit will the dependent variable be measured?	
Materials needed:	<i>Diagram of setup:</i>		Procedures:
Constants or controlled variables:			

# Conducting the Experiment

*Prepare a data table and graph.*

*Record your observations in the data table, graph the results, and communicate your results.*

**Table:** Set up this data table prior to conducting the investigation.


STOP

Have an expert review this plan prior to starting the experiment

Expert Reviewed (signature)

**Graph:** Graph your results. Be sure to label the graph.



**Conclusions:** What did you find?

**Discussion:** What does this mean?